

## **WHAT IS CLAIMED IS:**

1. A single searcher, for performing a plurality of segmentable search tasks,  
2 comprising:
  - 3 a plurality of storage elements, selectable for performing the plurality of  
4 search tasks, each storage element operable for storage of and access to state  
information for one of the plurality of search tasks.
- 2 2. The searcher of claim 1, further comprising a non-coherent accumulator,  
3 partial accumulations from which are stored in ones of the plurality of storage elements  
4 corresponding to ones of the plurality of search tasks.
- 2 3. The searcher of claim 1, further comprising a coherent accumulator,  
3 partial accumulations from which are stored in ones of the plurality of storage elements  
4 corresponding to ones of the plurality of search tasks.
- 2 4. The searcher of claim 1, further comprising a peak detector, peak  
3 detector state information for which is stored in ones of the plurality of storage elements  
4 corresponding to ones of the plurality of search tasks.
- 2 5. The searcher of claim 1, further comprising a sorter, sorting information  
3 for which is stored in ones of the plurality of storage elements corresponding to ones of  
4 the plurality of search tasks.
- 2 6. The searcher of claim 1, further comprising a processor connected to the  
3 plurality of storage elements, operable to load and retrieve state information therefrom.

7. The searcher of claim 1, wherein the plurality of storage elements are  
2 located in one random access memory (RAM).

2 8. The searcher of claim 1, wherein the plurality of storage elements are  
located in banks of registers.

2 9. A mobile station, including a searcher for performing a plurality of  
segmentable search tasks, comprising:  
4 a plurality of storage elements, selectable for performing the plurality of search  
tasks, each storage element operable for storage of and access to state information for  
6 one of the plurality of search tasks.

2 10. A wireless communication system, including a mobile station configured  
for performing a plurality of segmentable search tasks in a single searcher, comprising:  
4 a plurality of storage elements, selectable for performing the plurality of search  
tasks, each storage element operable for storage of and access to state information for  
6 one of the plurality of search tasks.

2 11. A method of performing a plurality of segmentable search tasks, in a  
single searcher, comprising:  
4 interrupting a first search task in progress;  
storing state information for the first search task;  
6 performing a second search task;  
accessing state information for the first search task; and  
8 continuing the first search task using the accessed state information.

2 12. A method of performing a plurality of segmentable search tasks, in a  
single searcher, comprising:  
4 performing a first search task, selecting a first storage element for storing partial

results and state information for the first search task;

6        interrupting the first search task with a second search task;

6        performing the second search task, selecting a second storage element for storing

8        partial results and state information for the second search task; and

8        returning to the first search task, re-selecting the first storage element for

10      accessing partial results and state information for the first search task.

2        13.      A method of segmenting a plurality of search tasks for processing with a  
single searcher, operable with a plurality of storage elements corresponding to the  
4        plurality of search tasks, comprising:  
4        partitioning a first search task into a plurality of search segments, the length of  
6        time to process each segment being less than or equal to a contiguous segment of time  
allotted within the searcher for processing the first search task;

8        performing each of the plurality of search segments, storing the results in a first  
one of the plurality of storage elements; and

10      performing a plurality of alternate search tasks, selecting ones of the remainder  
of the plurality of storage elements for processing therewith, the alternate search tasks  
12      being processed in time periods between the processing of ones of the plurality of  
search segments of the first search task.

2        14.      Processor readable media operable to perform the following steps:  
interruption a first search task in progress;  
4        storing state information for the first search task;  
4        performing a second search task;  
6        accessing state information for the first search task; and  
6        continuing the first search task using the accessed state information.

2        15.      Processor readable media operable to perform the following steps:  
performing a first search task, selecting a first storage element for storing partial  
4        results and state information for the first search task;  
4        interrupting the first search task with a second search task;

6 performing the second search task, selecting a second storage element for storing  
partial results and state information for the second search task; and  
8 returning to the first search task, re-selecting the first storage element for  
accessing partial results and state information for the first search task.

2 16. Processor readable media, operable for segmenting a plurality of search  
tasks for processing with a single searcher, configured with a plurality of storage  
4 elements corresponding to the plurality of search tasks, the media operable to perform  
the following steps:

6 partitioning a first search task into a plurality of search segments, the length of  
time to process each segment being less than or equal to a contiguous segment of time  
8 allotted within the searcher for processing the first search task;  
10 performing each of the plurality of search segments, storing the results in a first  
one of the plurality of storage elements; and  
12 performing a plurality of alternate search tasks, selecting ones of the remainder  
of the plurality of storage elements for processing therewith, the alternate search tasks  
being processed in time periods between the processing of ones of the plurality of  
14 search segments of the first search task.

2 17. A single searcher for performing a plurality of segmentable search tasks,  
comprising:

4 means for interrupting a first search task in progress;  
means for storing state information for the first search task;  
6 means for performing a second search task;  
means for accessing state information for the first search task; and  
8 means for continuing the first search task using the accessed state information.

2 18. A single searcher for performing a plurality of segmentable search tasks,  
comprising:

4 means for performing a first search task, selecting a first storage element for  
storing partial results and state information for the first search task;

6           means for interrupting the first search task with a second search task;;  
6           means for performing the second search task, selecting a second storage element  
8    for storing partial results and state information for the second search task; and  
8           means for returning to the first search task, re-selecting the first storage element  
10   for accessing partial results and state information for the first search task.

2           19.    An apparatus for segmenting a plurality of search tasks for processing  
4           with a single searcher, operable with a plurality of storage elements corresponding to  
4           the plurality of search tasks, comprising:  
6           means for partitioning a first search task into a plurality of search segments, the  
6           length of time to process each segment being less than or equal to a contiguous segment  
6           of time allotted within the searcher for processing the first search task;  
8           means for performing each of the plurality of search segments, storing the  
8           results in a first one of the plurality of storage elements; and  
10          means for performing a plurality of alternate search tasks, selecting ones of the  
12          remainder of the plurality of storage elements for processing therewith, the alternate  
12          search tasks being processed in time periods between the processing of ones of the  
12          plurality of search segments of the first search task.

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